

Nebraska Soybean Board



11/5/2018

Year-End Summary Research Report Form For Multi-Year Projects

Please use this form to summarize the practical benefits of your research project and what has been accomplished.

Your answers need to convey why the project is important and how the results will impact soybean production.

Note that this form must be submitted with the 4th Quarter Report in all multi-year projects.

Project Title: #1724: Benchmarking Soybean Production Systems in Nebraska

Principal Investigator: Patricio Grassini (UNL–Department of Agronomy)

Year of Multi Year: 1 of 1 (For example: Year 1 of 3, Year 2 of 2)

1. What was the focus of the research project or educational activity?

The primary goal of the proposed project was to “benchmark” current yield and management practices in soybean producer fields.

2. What are the major findings of the research or impacts of the educational activity?

The “benchmark data” helped to identify those KEY management factors in NE (and across the NC USA region) that can be used by individual producers to increase soybean yield on their farms, and do that with an input-use efficiency that will improve bottom-line net profit.

3. Briefly summarize, in lay terms, the impact your findings have had, or will have, on improving the productivity of soybeans in Nebraska and the U.S.

This study have identified planting date, foliar fungicide and/or insecticide, and tillage as major explanatory factors for soybean yield gaps in the US North Central region. We have listed the major yield limiting factors for major climate-soil domains in the region and identified opportunities for producer to increase their yields and farm profits. We are now going to start a new NCSRP-funded project to validate the results and disseminate them across US soybean producers.

4. Describe how your findings have been (or soon will be) distributed to (a) farmers and (b) public researchers. List specific publications, websites, press releases, etc.

- Three scientific publications:

- (1) Mourtzinis S, Rattalino Edreira JI, Grassini P, Roth A, Ciampitti IA, Licht MA, Kandel H, Kyveryga PM, Lindsey LE, Mueller DS, Naeve SL, Nafziger E, Specht JE, Stanley J, Staton MJ, Conley SP (2018) Sifting and winnowing: Analysis of farmer field data for soybean in the US North-Central region. *Field Crops Res.* 221, 130-141.
- (2) Rattalino Edreira JI, Mourtzinis S, Conley SP, Roth A, Ciampitti IA, Licht MA, Kandel H, Kyveryga PM, Lindsey LE, Mueller DS, Naeve SL, Nafziger E, Specht JE, Stanley J, Staton MJ, Grassini P (2017) Assessing causes of yield gaps in agricultural areas with diversity in climate and soils. *Agric. For. Meteorol.* 247, 170-180.
- (3) Andrade JF, Rattalino Edreira JI, Mourtzinis S, Conley SP, Ciampitti IA, Dunphy JE, Gaska JM, Glewen K, Holshouser DL, Kandel HJ, Kyveryga P, Lee CD, Licht MA, Lindsey LE, McClure MA, Naeve S, Nafziger ED, Orlowsky JM, Rosso J, Staton MJ, Thompson L, Specht JE, Grassini P (2018). Assessing the influence of row spacing on soybean yield using experimental and producer survey data. *Field Crops Research* (accepted).

-Two more scientific publications, one under final revision (Azzaro et al, *Journal of Remote Sensing*) and another to be submitted soon (Rattalino Edreira et al). A summary report was prepared and posted in the North Central Soybean Research Program website (<http://www.soybeanresearchinfo.com/index.php?id=57> - SEE) and also published as a UNL CropWatch article (<http://cropwatch.unl.edu/2016/help-us-identify-limiting-factors-nebraska-soybean-fields>) and made accessible to all NE soybean producers. The report was also shared with educators, NRDs, NSB members, etc. Likewise, Patricio Grassini (Project PI) gave presentations at the 2018 winter UNL Crop Production Clinics at 8 locations in NE. Also, Juan Ignacio Rattalino Edreira (Post-Doctoral Research Associate working on this project) presented results from this project at the 2018 Annual ASA/CSSA/SSSA Meetings at Tampa and will present again at the 2019 meetings at Baltimore.

5. Did the NE soybean checkoff funding of your project, leverage additional State or Federal funding support? Please list sources and dollars approved.

The NSB funding helped us to secure funding from North Central Soybean Research Program (NCSRP) to fund a new project over three years, at a total level of 1.5 million (total for the 3 years). Patricio Grassini is the co-PI of the funded NCSRP project, together with Shawn Conley from Wisconsin.

Please e-mail this report to the Agriculture Research Division (jmonagham2@unl.edu).